

Fascia of the Neck and Triangles of the Neck 2

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INTENDED LEARNING OBJECTIVES (ILO)



- By the end of this lecture the student will be able to:

1- Identify boundaries of anterior triangle of the neck & its subdivisions

2- Enumerate structures in digastric, carotid, muscular & submental triangles.

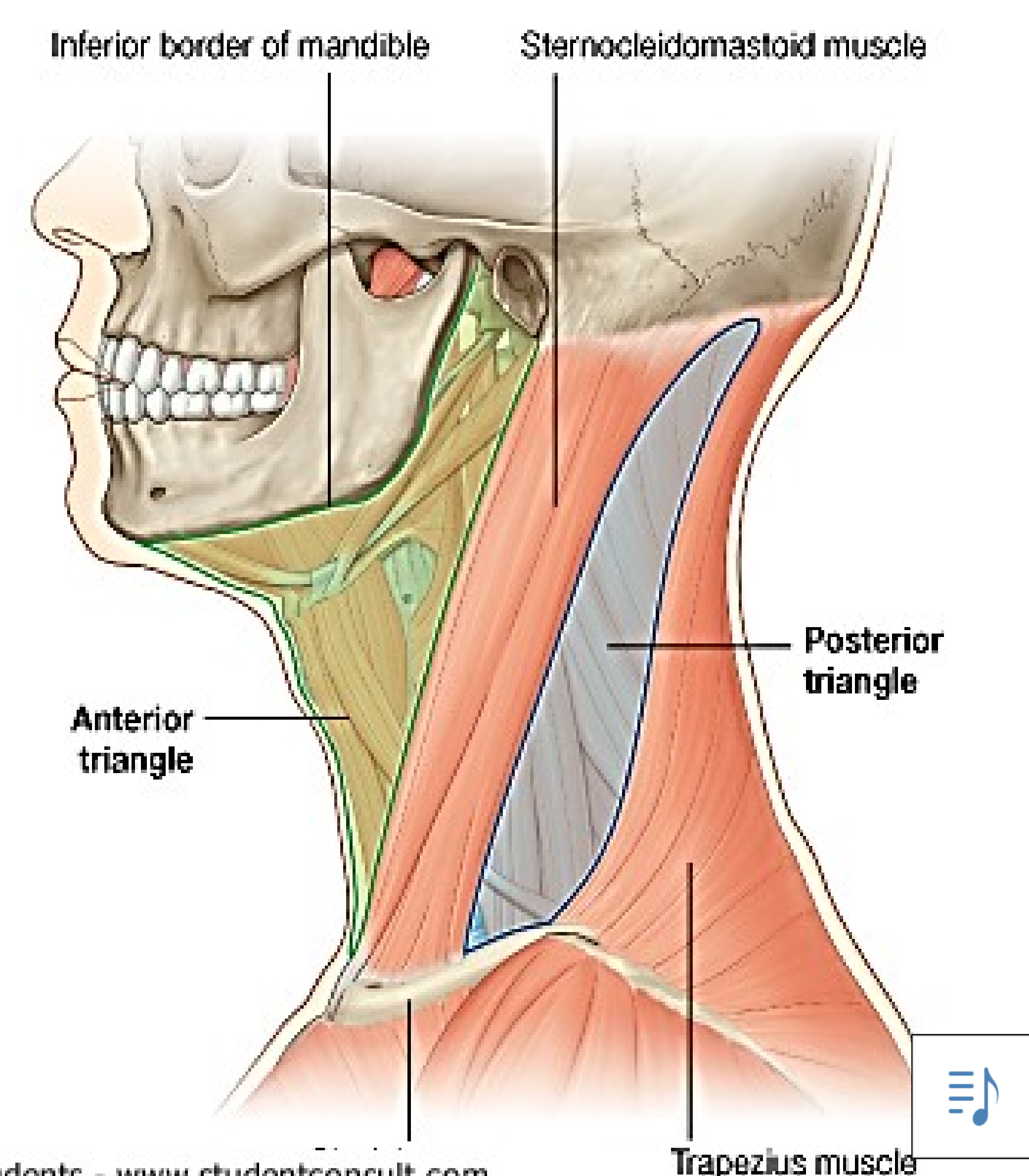
Key points



1- Boundaries of the anterior triangle of the neck & its subdivisions.
2- Contents of digastric, carotid, muscular & submental triangles.



The triangle is inverted with its apex below & its base above



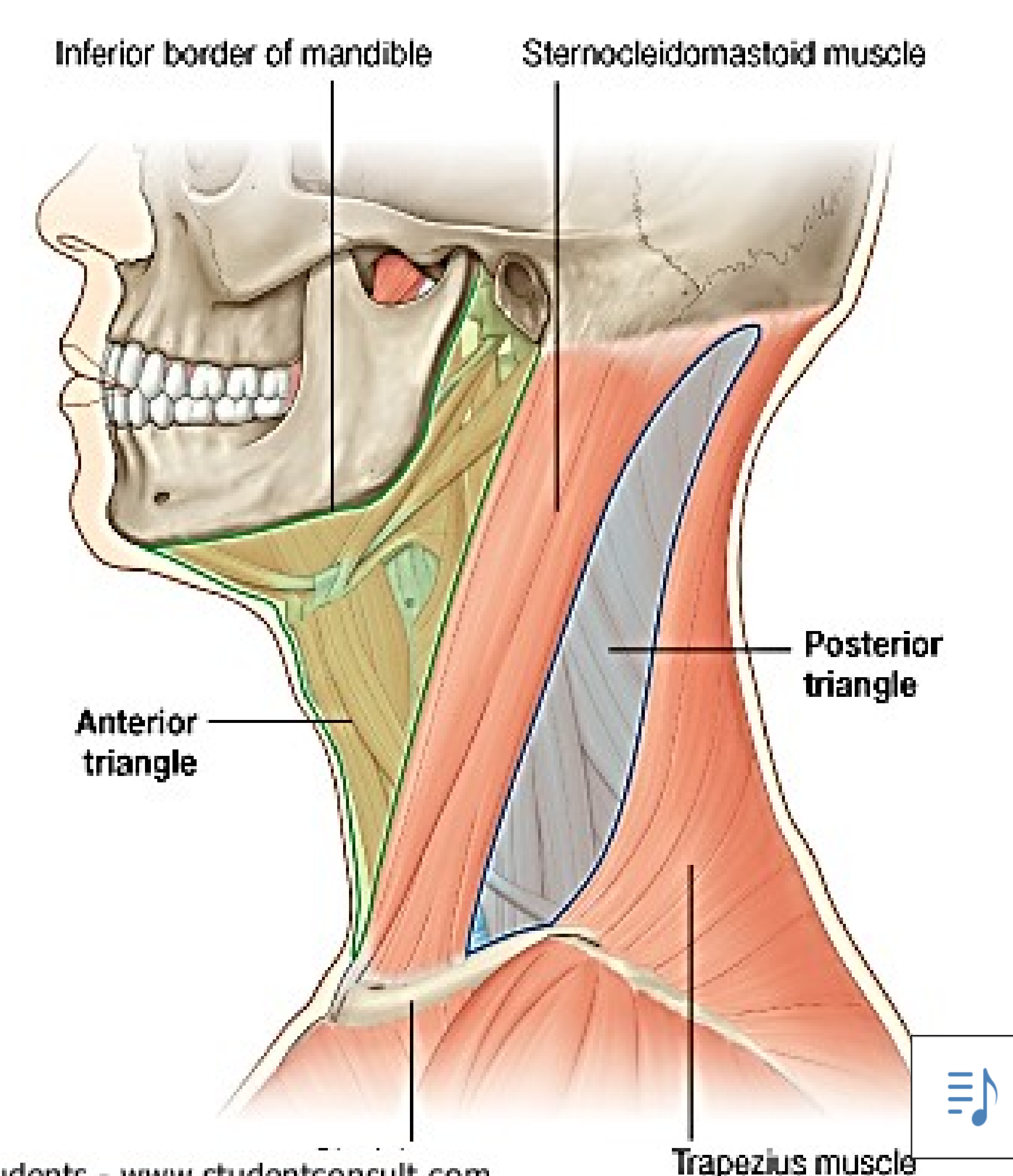
Boundaries of Anterior Triangle



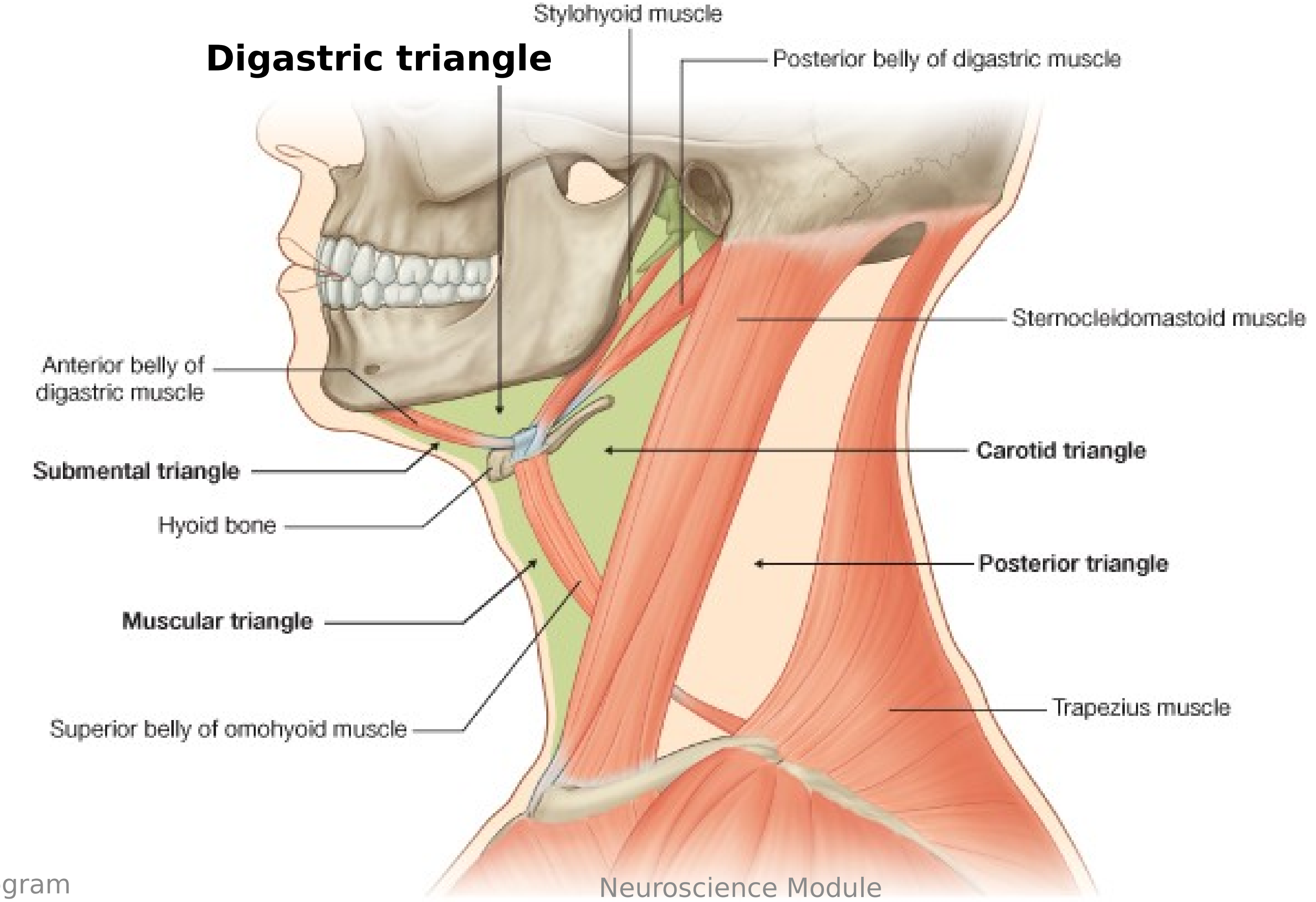
- ***Apex:***

manubrium sterni.

- ***Anterior:***
  - ***midline of the neck from chin to manubrium sterni.***
- ***Posterior:***
  - ***by the anterior margin of the sternomastoid.***
- ***Base:***
  - ***by the lower border of the body of mandible, and a line extending from the angle of mandible to the mastoid process.***



***Anterior triangle is**: divided by hyoid bone & 3 muscles attached to it (2 digastric + superior belly of omohyoid) into 3½ triangles on each side.*



Digastric Triangle

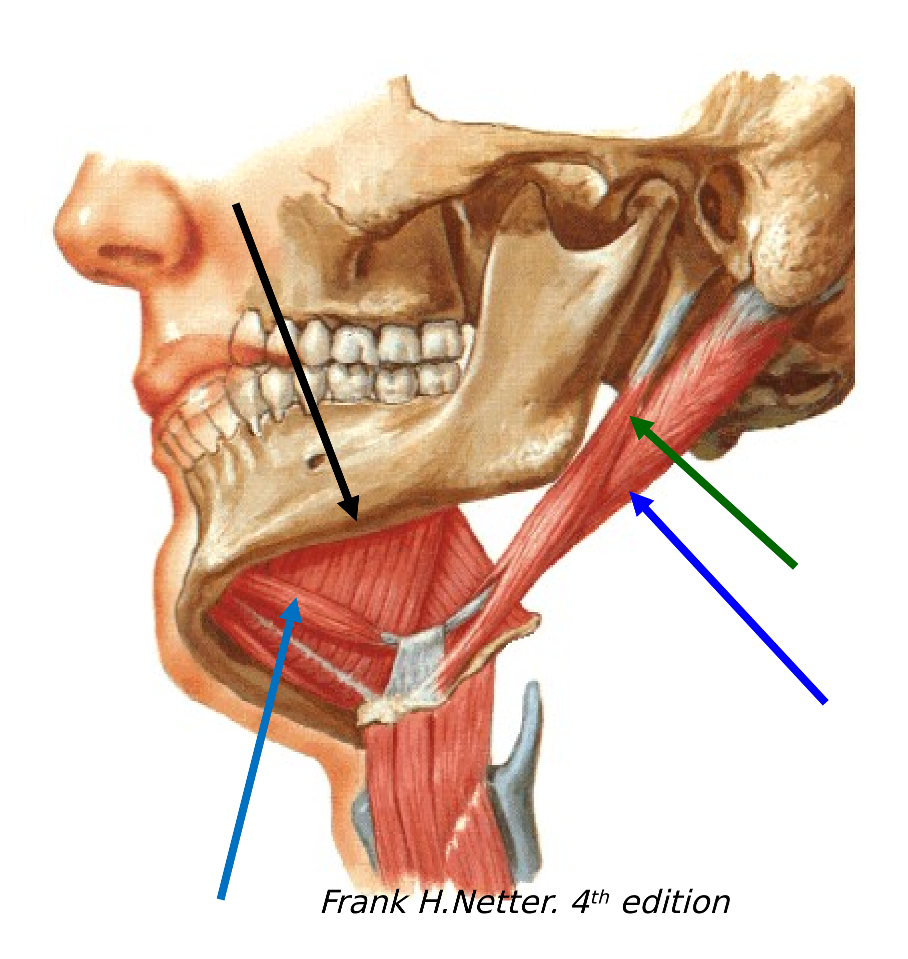


Boundaries:

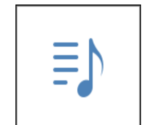
-*Anteriorly:* Anterior belly of digastric muscle.

-*Posteriorly:* Posterior belly of digastric and stylohyoid muscles.

-Superiorly (base): Inferior border of mandible and a line drawn from angle of mandible to mastoid process.



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Digastric Triangle



Roof:

1-Skin
2-Superficial fascia,
3- investing deep cervical fascia which splits to enclose submandibular salivary gland.

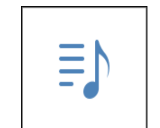
Floor:

1. ***Mylohyoid m.***
2. ***Hyoglossus m.***

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Posterior belly of digastric
Hyoglossus
Base of the mandible
Mylohyoid
Anterior belly of digastric
Submandibular Salivary gland


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Digastric triangle

Boundaries

- Ant. Belly of digastric
- Post. Belly of digastric
- Base of the mandible

Floor

Ant: Mylohoid m.
Post: Hyoglossus m.

Mylohyoid
Posterior belly of digastric
Hyoglossus
Anterior belly of digastric

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Posterior belly of digastric
Hyoglossus
Base of the mandible
Mylohyoid
Sternomastoid
Anterior belly of digastric

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Contents of Digastric Triangle



- **Anterior part:** **2 glands, 2 arteries, 2 veins, 2 nerves**

1-Submandibular Gland & LN

2- Facial artery (deep) & submental artery

3- Facial vein (superficial) & submental vein

4- Hypoglossal nerve & Mylohyoid nerve.

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Contents of Digastric Triangle



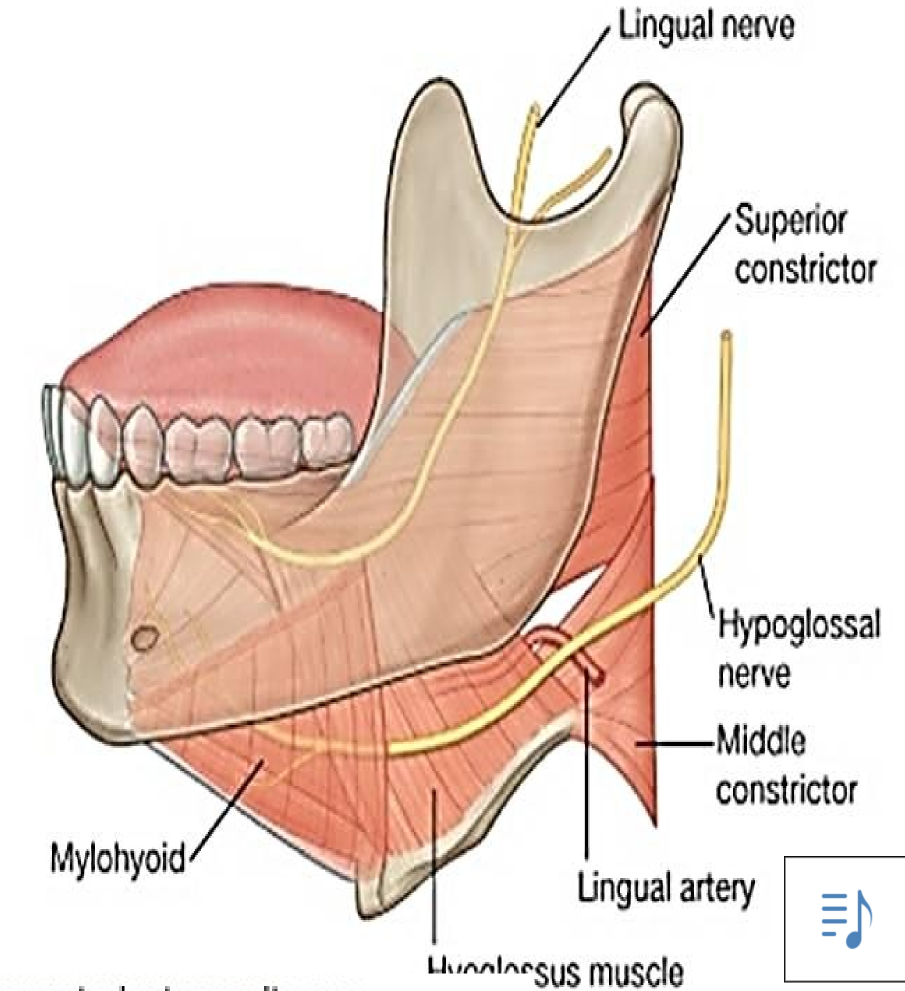
- **Anterior part: 2 glands, 2 arteries, 2 veins, 2 nerves**

1-Submandibular Gland & LN

2- Facial artery (deep) & submental artery

3- Facial vein (superficial) & submental vein

4- Hypoglossal nerve (between mylohyoid & hyoglossus)
& Mylohyoid nerve (supplies mylohyoid & ant. Belly of digastric)



Contents of Digastric Triangle



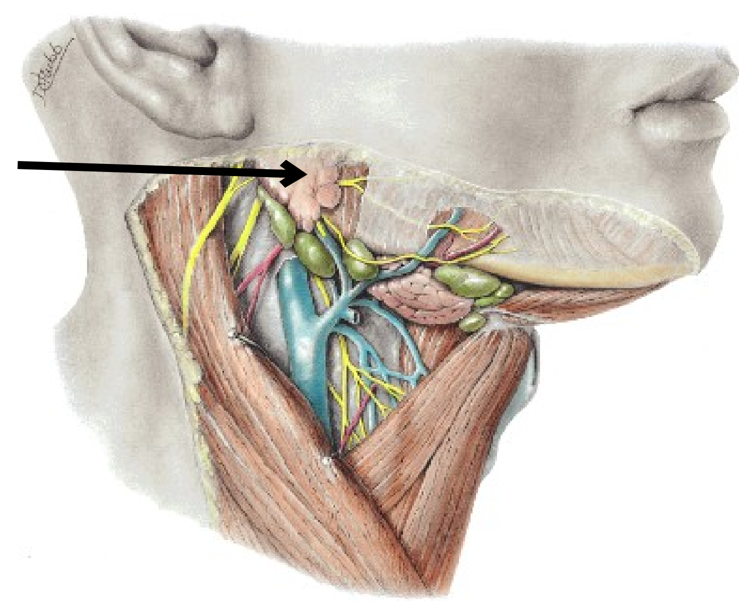
- **Posterior part: Carotid sheath**

Parotid   **ECA**

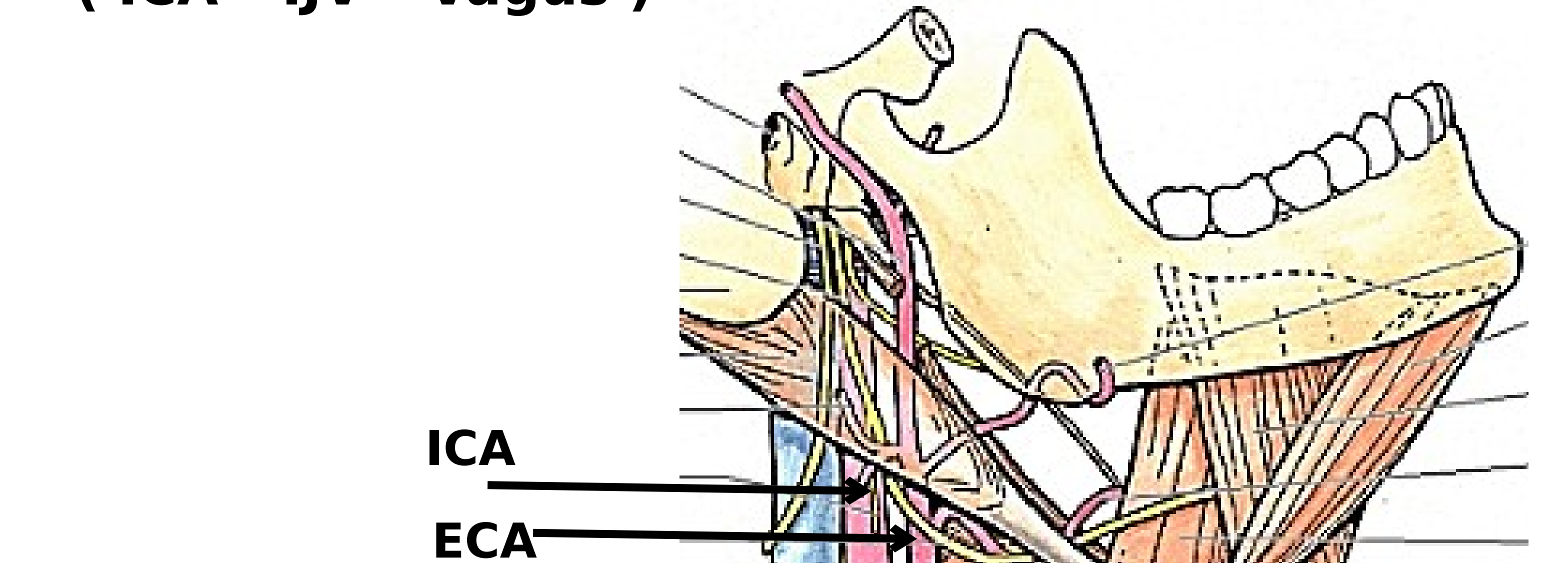
1- Lower part of parotid gland

2- External carotid artery

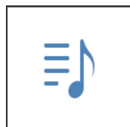
3- Upper part of carotid sheath (ICA – IJV – Vagus)



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Quiz (boundaries of anterior triangle & its subdivisions)



A stab wound above digastric muscle, can cause injury to one of the following structures

a. Accessory nerve
b. Hypoglossal nerve
c. common carotid artery
d. Subclavian artery
e. Superior thyroid artery



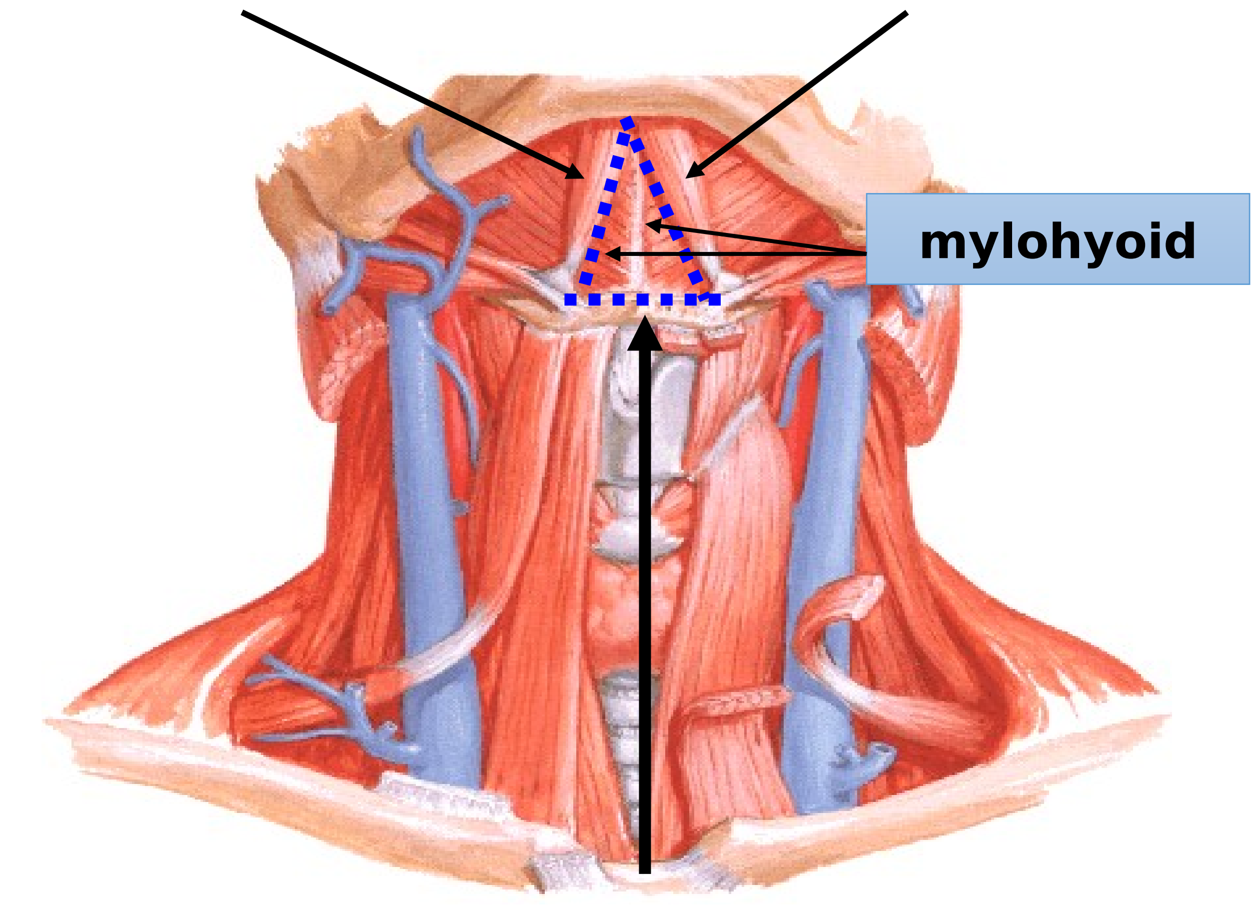
Submental Triangle



A median triangle that is formed between the chin and hyoid bone

Boundaries:

- **Base:** **Hyoid bone**
- **Apex :** **Symphysis menti**
- **On each side** **:Anterior belly of digastric**
- **Floor** **2 mylohyoid muscles with their median raphe**



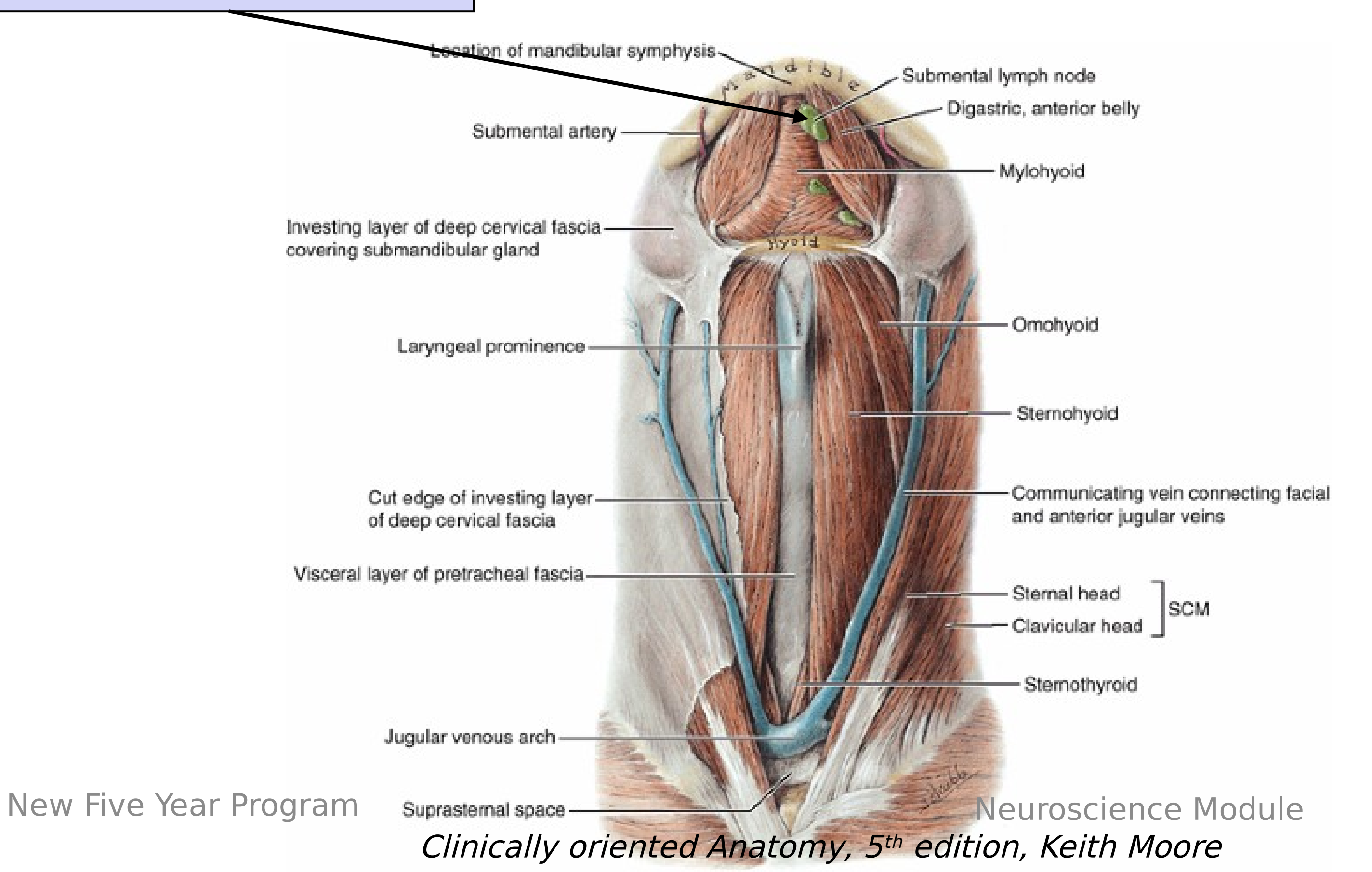
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%2Fflashcards%2F85590%2F001B%2B%2BSuperficial%2Band%2BDeep%2BStruct
%2Bof%2Bthe%2BNeck

Contents of Submental Triangle

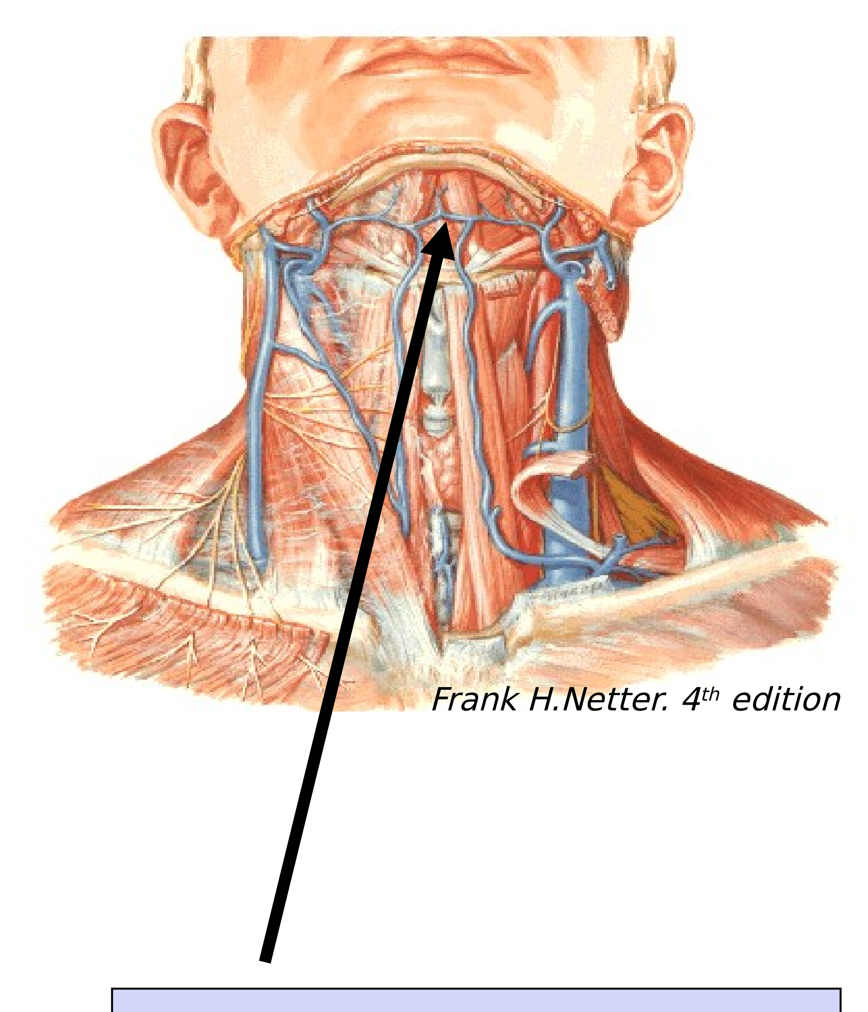


- **Submental arteries**
- **Submental veins**
- **Sub mental lymph nodes**

Submental lymph nodes



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Submental veins



Carotid Triangle



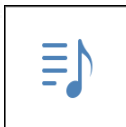
Boundaries:

1. **Posterior :**
   Anterior border of sternomastoid

2. **Superior:**
   Posterior belly of digastric

3. **Anterior:**
   Superior belly of omohyoid

Stylohyoid muscle
Submandibular triangle
Posterior belly of digastric muscle
Sternocleidomastoid muscle
Anterior belly of digastric muscle
Carotid triangle
Submental triangle
Hyoid bone
Posterior triangle
Muscular triangle
Trapezius muscle
Superior belly of omohyoid muscle

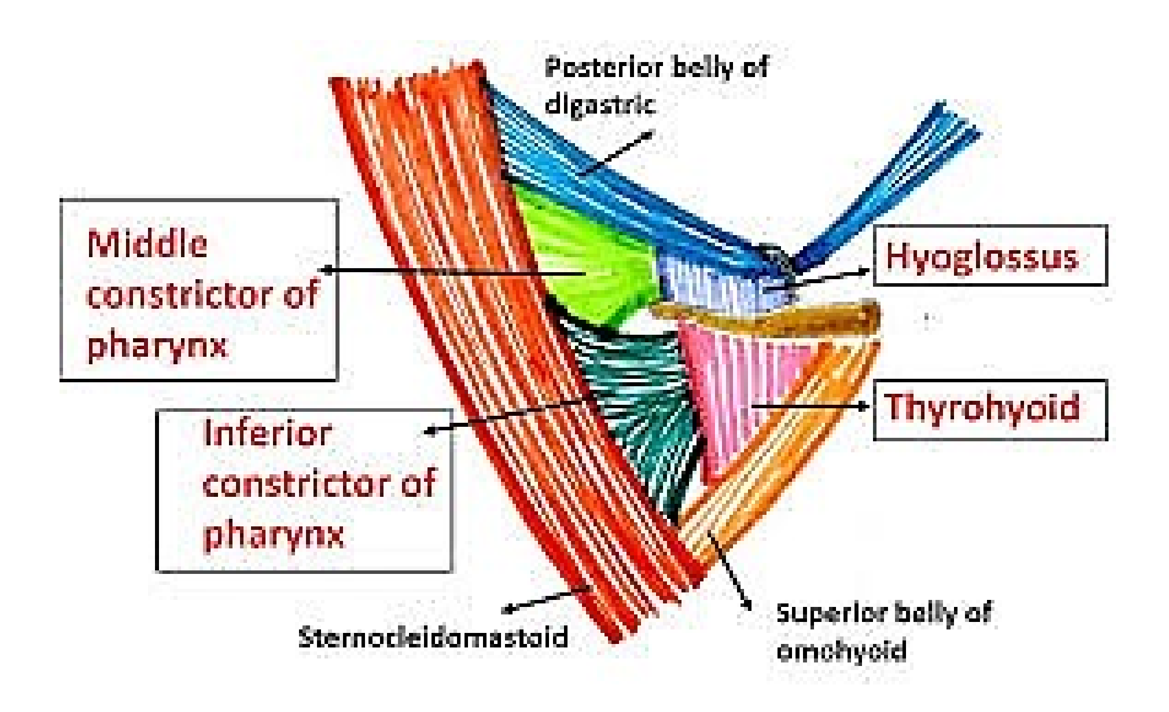




Floor:

Ant: Hyoglossus and thyrohyoid ms.

Post: Constrictors of pharynx



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Contents of Carotid Triangle



- 1- vessels
- 2- nerves
- 3- Carotid sheath
- 4- lymph nodes (deep cervical LNs along IJV)



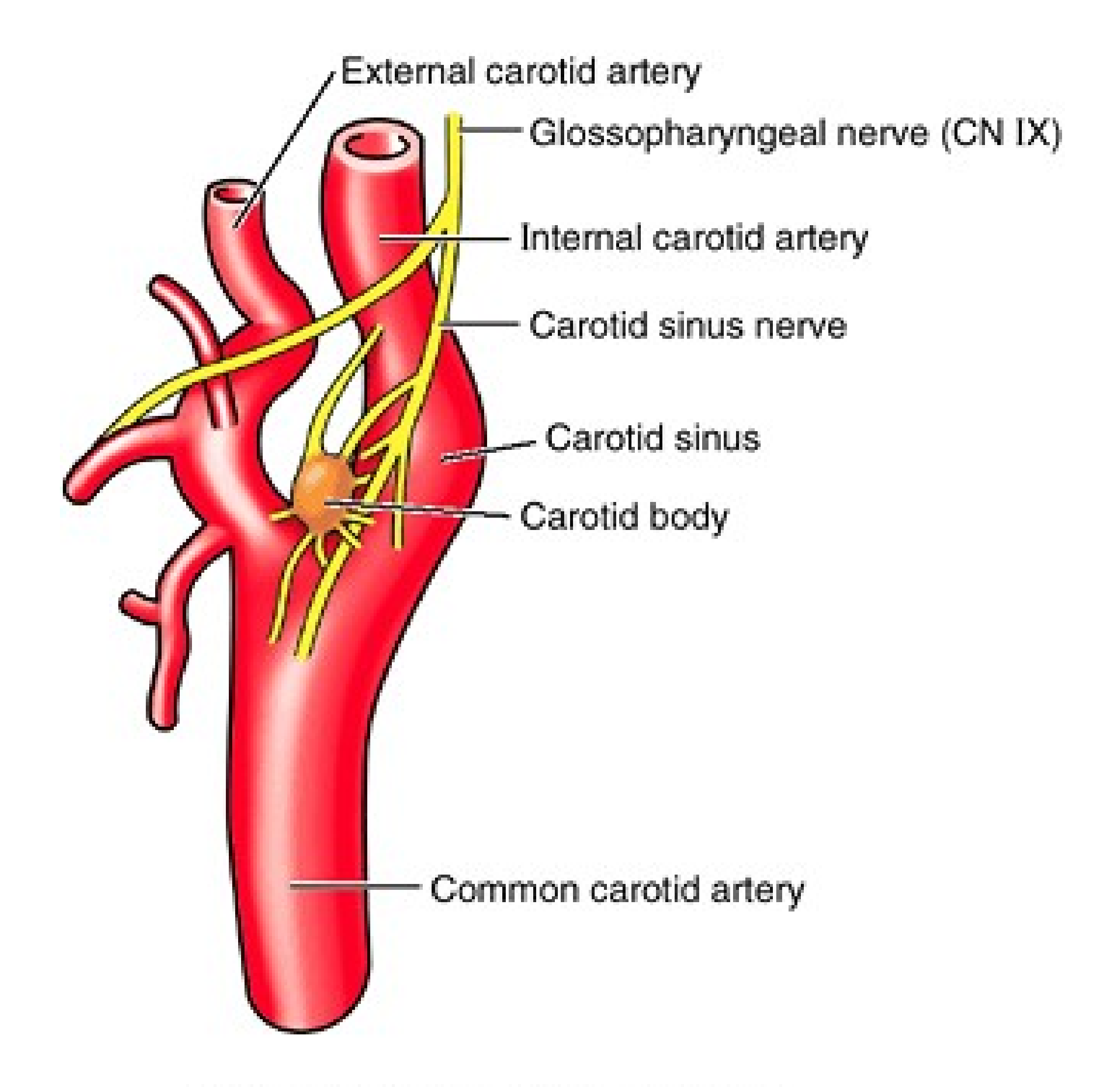
Arteries

Internal Carotid Artery

External Carotid Artery

Common Carotid Artery

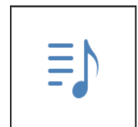




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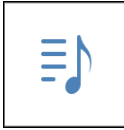
Carotid body

Carotid sinus



5 Branches of ECA

Maxillary artery
Superficial temporal artery
Posterior auricular artery
Facial artery
Internal jugular vein
Occipital artery
Lingual artery
Internal carotid artery
Ascending pharyngeal artery
Carotid sinus
External carotid artery
Superior thyroid artery
Common carotid artery
Thyroid gland



Veins

External acoustic meatus
Superior bulb of IJV
Inferior petrosal sinus
Occipital vein
Pharyngeal veins
Facial vein
Lingual vein
Internal jugular vein (IJV)
Superior
Thyroid vein
Middle
External jugular vein (EJV)
Inferior bulb and valve of IJV
Anterior jugular vein
Inferior thyroid vein
Subclavian vein
Left brachiocephalic vein
Sternoclavicular joint
Right brachiocephalic vein
Superior vena cava

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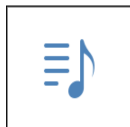
Internal jugular veins (IJV) and tributaries

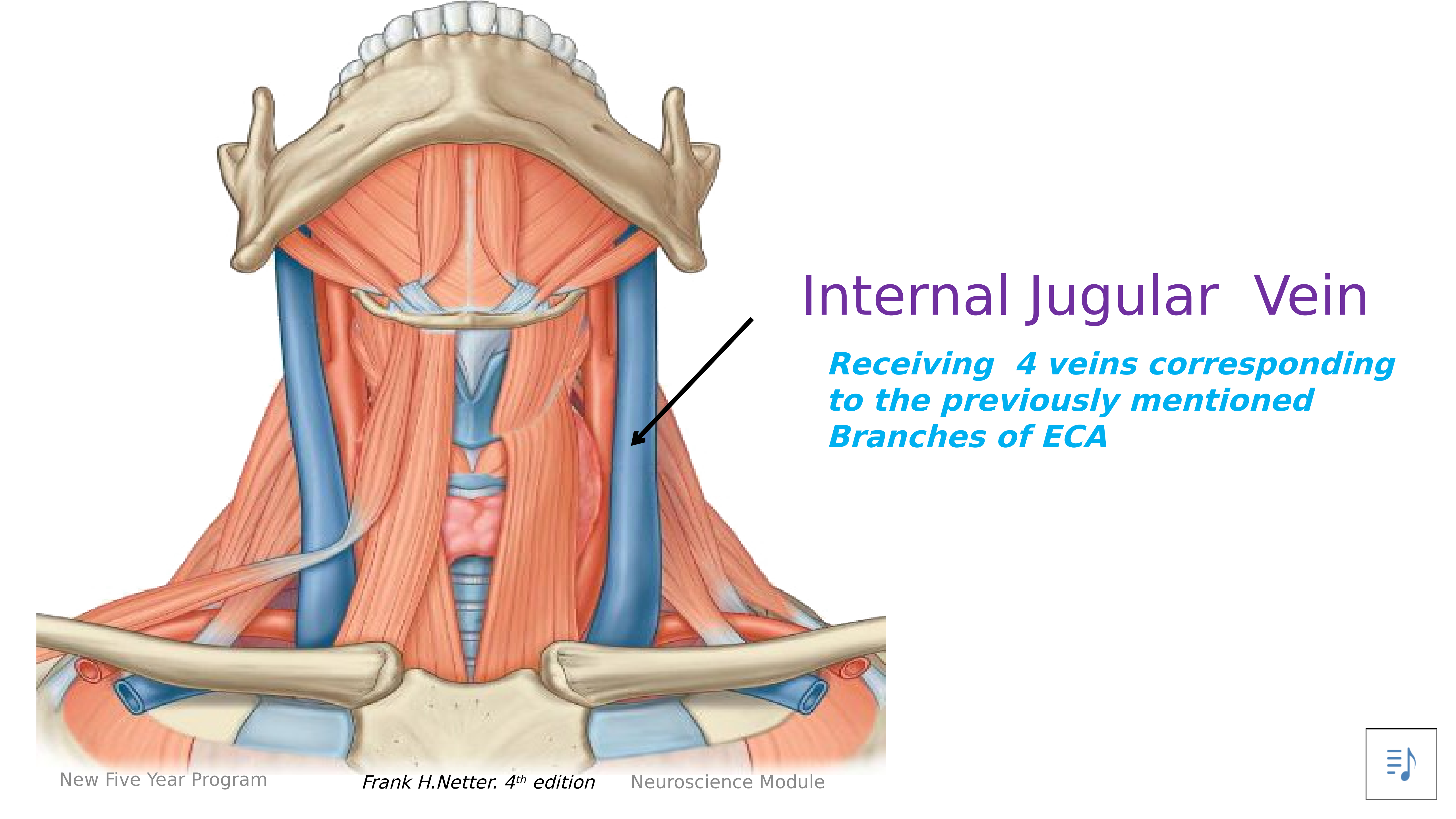
1- pharyngeal veins

2- lingual vein

3- common facial

4- superior thyroid vein




Internal Jugular Vein
Receiving 4 veins corresponding to the previously mentioned Branches of ECA
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Nerves

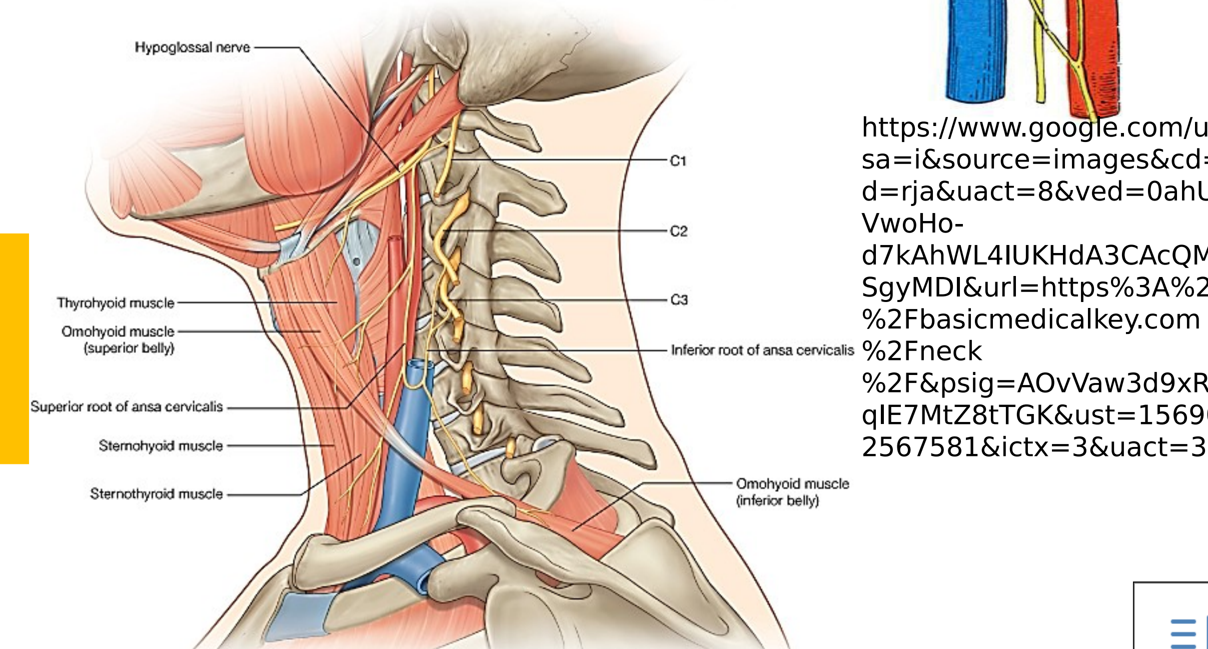
Last 3 cranial ns

- Vagus nerve X
- Accessory nerve XI
- Hypoglossal nerve XII

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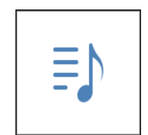
Ansa cervicalis

Anterior to carotid sheath



Sympathetic chain

Posterior to carotid sheath



Vessels:

CCA, ECA, ICA, IJV

Beginning of some **branches of ECA**

Nerves:

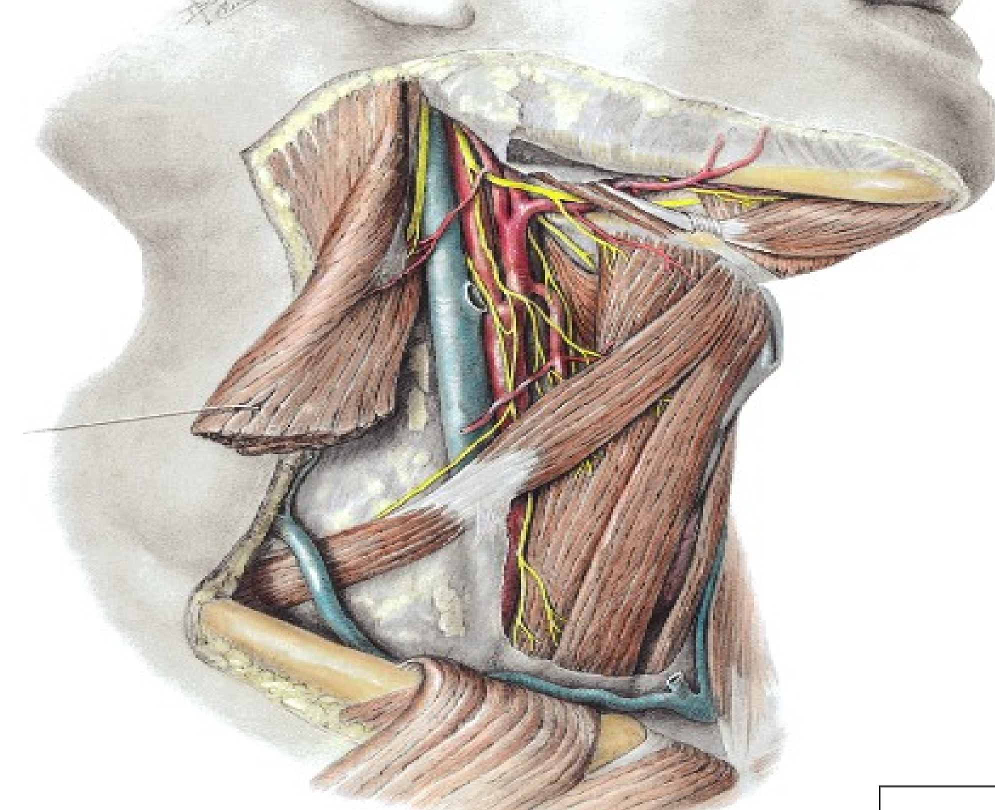
Cranial nerves **X, XI, XII**

Ansa cervicalis (lies anterior to the carotid sheath)

Sympathetic trunk (lies posterior to the carotid sheath)

CAROTID TRIANGLE

https://www.google.com/url?sa=i&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwjkoYzZh9_kAhWBzYUKHfOzCyIQMwhgKBIwEg&url=https%3A%2F%2Fslideplayer.com%2Fslide%2F12969484%2F&psig=AOvVaw2wpkNwDn6WdOhZOCuD3EZK&ust=1569057199381637&ictx=3&uact=3



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Muscular Triangle

Boundarie : s

nterior:
ddle line of the front of the nec

osterosuperior:
perior belly of omohyoid m.

osteroinferior:
terior border of sternomastoid

Stylohyoid muscle
Submandibular triangle
Posterior belly of digastric muscle
Sternocleidomastoid muscle
Anterior belly of digastric muscle
Carotid triangle
Submental triangle
Hyoid bone
Posterior triangle
Muscular triangle
Trapezius muscle
Superior belly of omohyoid muscle

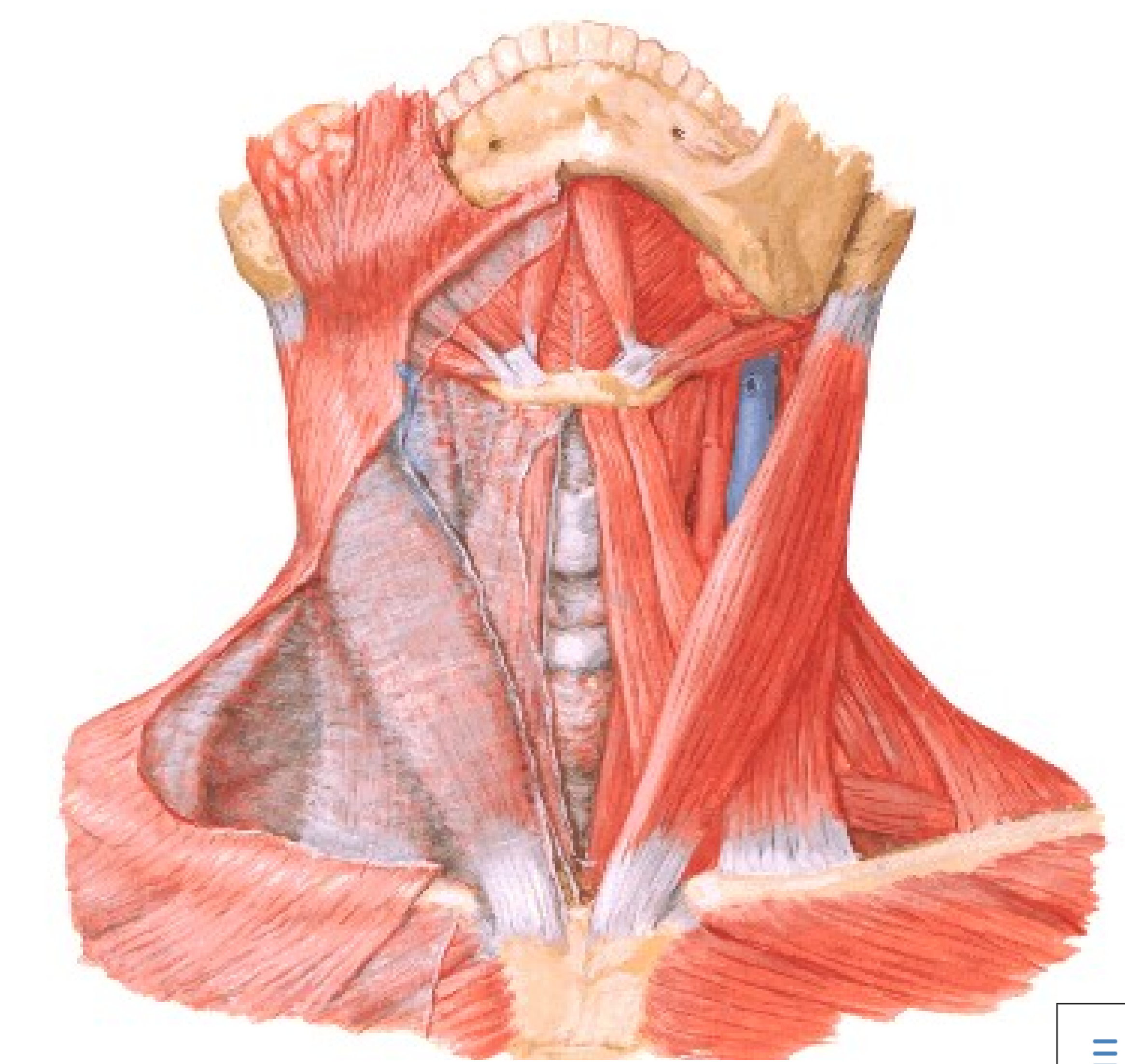


Boundaries:

Roof :

1. **Skin**
2. **Superficial fascia**
3. **Investing deep cervical fascia**

Floor : pretracheal fascia



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Infra-hyoid Muscles



- **Lie under hyoid bone**
- **Arranged into 2 layers:**

Superficial

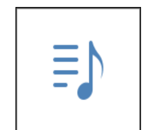
1. **sternohyoid**
2. **omohyoid**

Deep

3. **sternothyroid**
4. **thyrohyoid**

Hyoid bone
Thyroid cartilage
Omohyoid muscle
Cricoid cartilage
Sternohyoid muscle
Internal jugular vein
Thyrohyoid muscle
Common carotid artery
Sternothyroid muscle

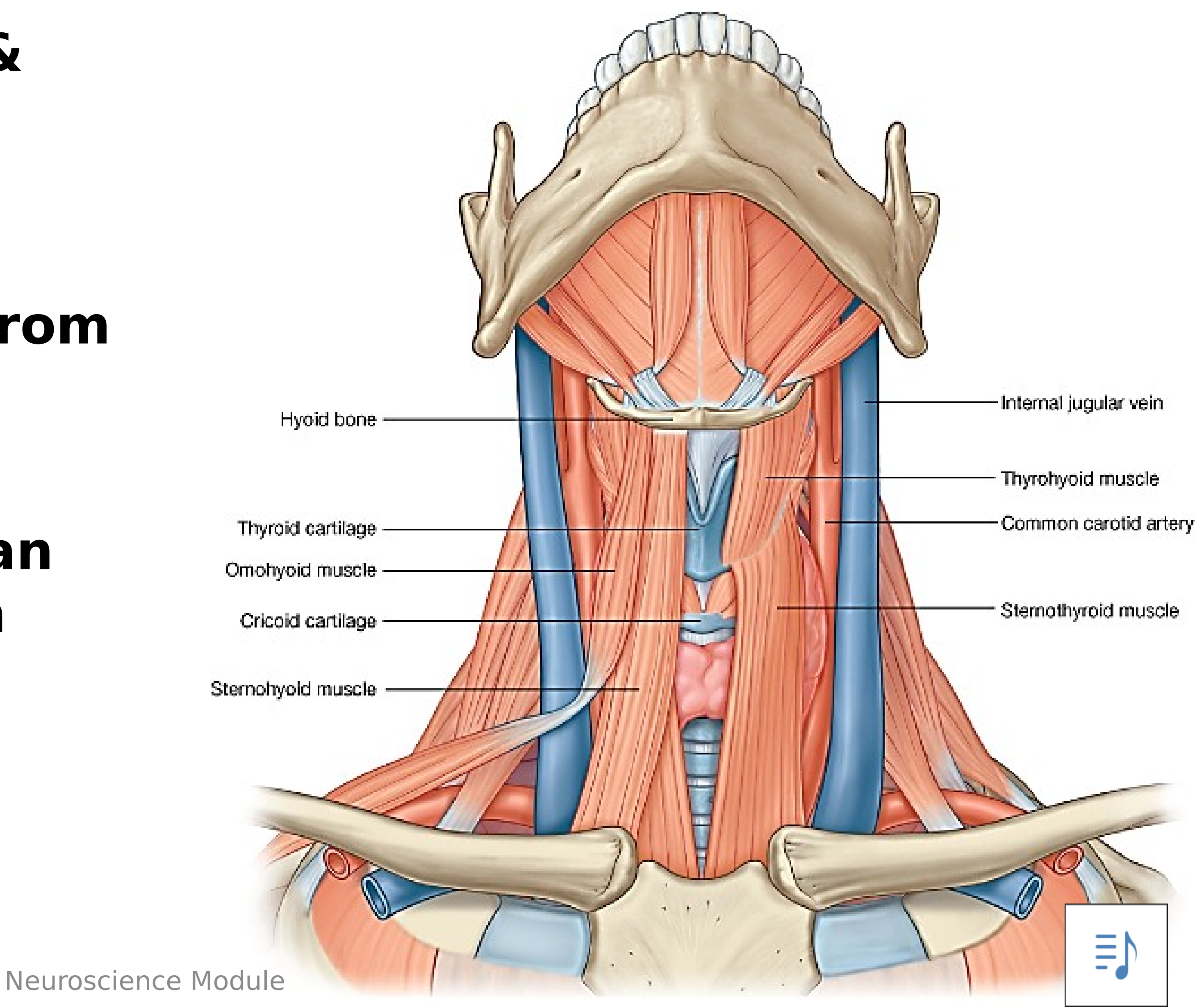
- All infrahyoid muscles are supplied by ansa cervicalis C1,2,3, except thyrohyoid which is supplied directly by C1 from hypoglossal n
- All infrahyoid muscles depress the hyoid bone



Omohyoid muscle-1

- Has **2 bellies**: superior & inferior
- **Origin of superior belly** from hyoid bone
- **Origin of inferior belly** from scapula

- **Insertion** both bellies join an **intermediate tendon** kept in position by a **fibrous loop** connecting it to clavicle

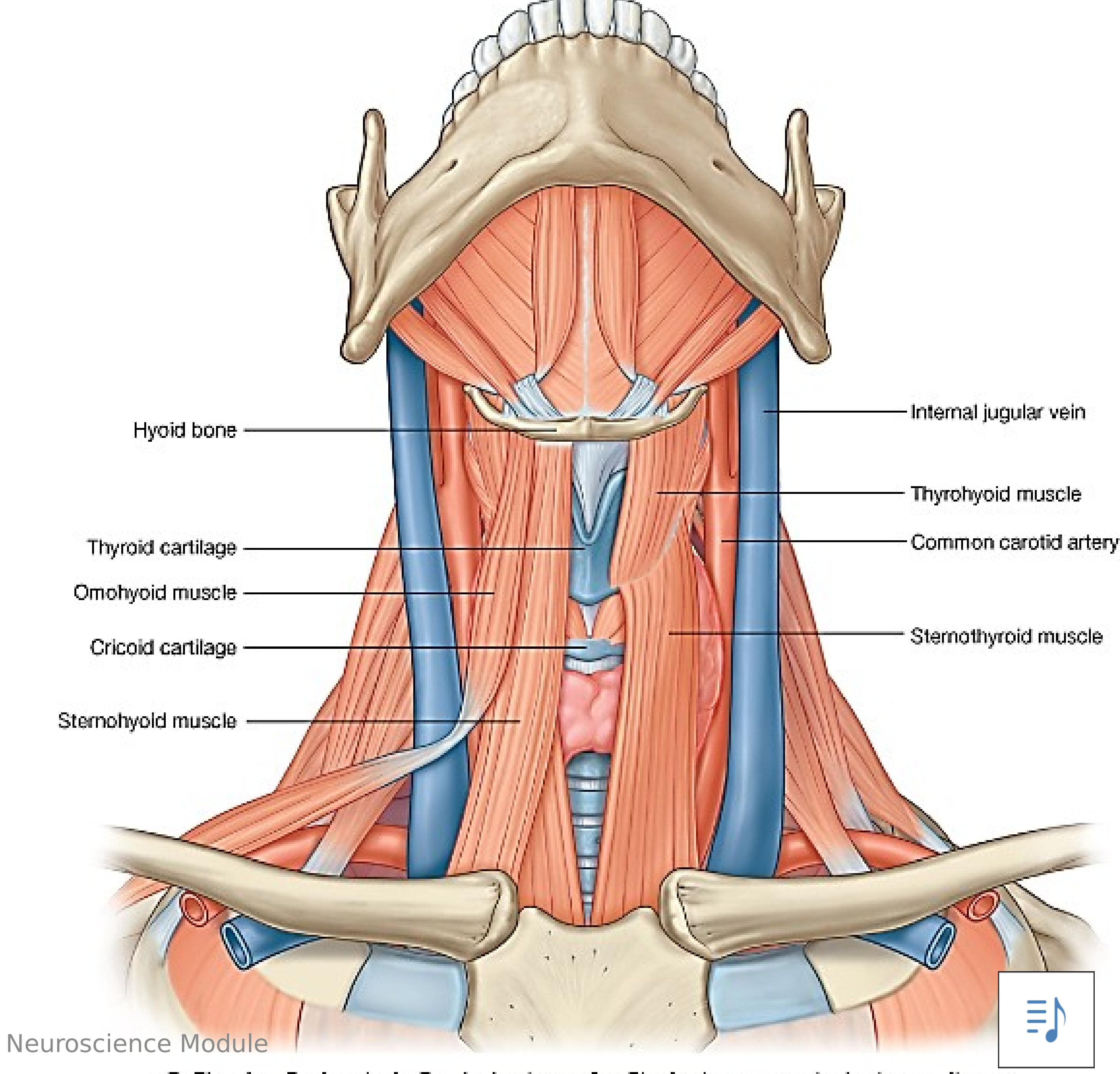


Sternohyoid muscle-2

Arise from the posterior surface of manubrium sterni to the lower border of

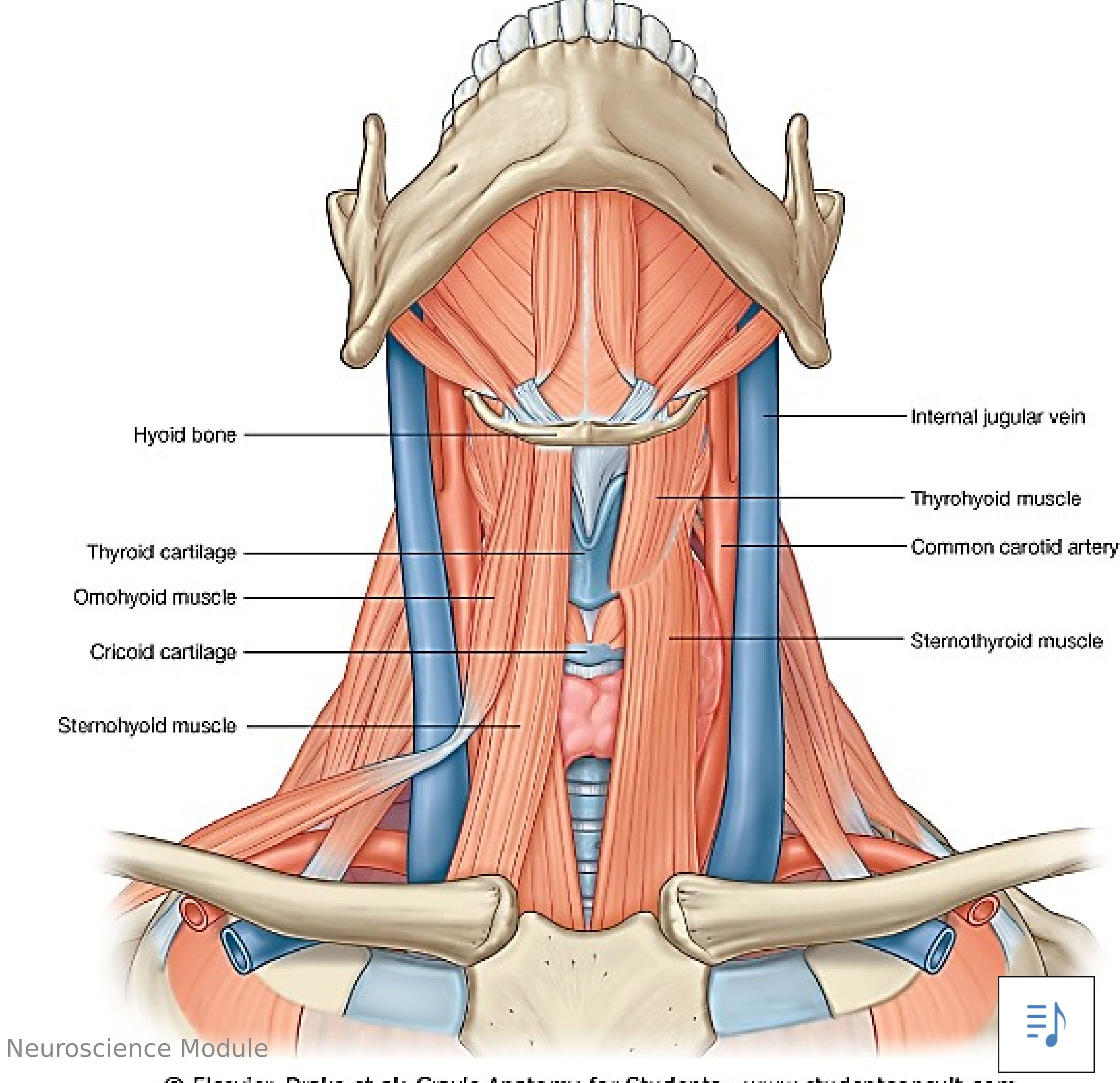
Sternothyroid -3 muscle

Arise from the manubrium sterni to thyroid cartilage



Thyrohyoid muscle-4

Arise from thyroid cartilage to the hyoid bone



Muscular Triangle



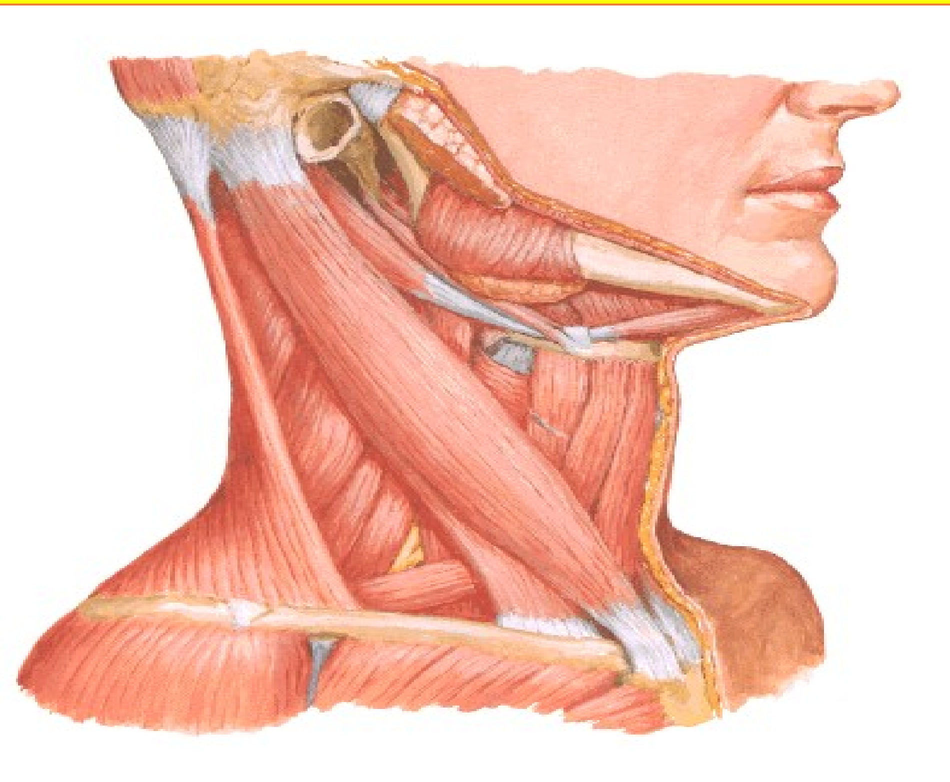
oundaries

nterior border of sternomastoid m.
uperior belly of omohyoid m.
Iiddle line of the front of the neck

Contents:

Infrahyoid muscles

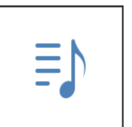
- Sternohyoid
- Sternothyroid
- Thyrohyoid
- Omohyoid



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Hyoid bone
Thyroid cartilage
Omohyoid muscle
Cricoid cartilage
Sternohyoid muscle
Internal jugular vein
Thyrohyoid muscle
Common carotid artery
Sternothyroid muscle

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Quiz (contents of digastric, carotid, muscular & submental)



The carotid sheath and its contents may be safely retracted as a unit during surgical procedures of the neck. One of the following is a content of carotid sheath

a. common carotid artery

b. External carotid artery

c. External jugular vein

d. sympathetic trunk

e. Hypoglossal nerve



Summary

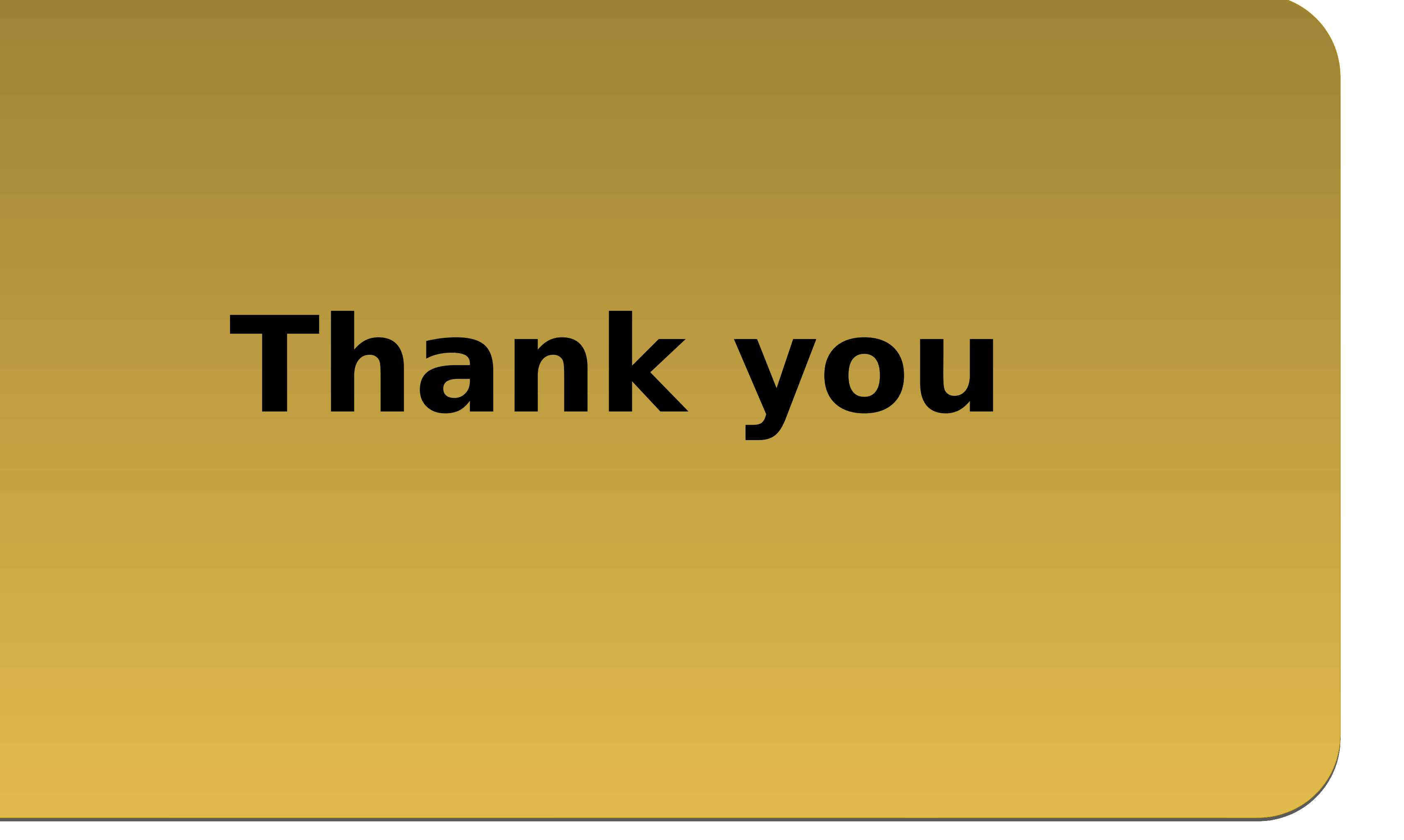


1- Boundaries of anterior triangle of the neck.
2- Digastric triangle
3- Carotid triangle
4- Muscular triangle
5- Submental triangle

SUGGESTED TEXTBOOKS



1. Gray‘ Anatomy for Students , Drake et al., 2004, pages 905- 914.


Thank you